

IN THE CLAIMS:

Please amend the claims as follows:

Claims 1-55. (Canceled).

Claim 56 (New): A substrate dividing method comprising the steps of:

irradiating a substrate with laser light while positioning a light-converging point within the substrate, so as to form a modified region within the substrate without forming a groove due to melting on a laser light incident face of the substrate, and causing the modified region to form a starting point region for cutting the substrate inside the substrate by a predetermined distance from the laser light incident face of the substrate; and

grinding the substrate after the step of forming the starting point region for cutting such that the modified region remains in the substrate;

wherein the substrate is cut when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and a rear face of the substrate.

Claim 57 (New): A substrate dividing method according to claim 56, wherein the substrate is a semiconductor substrate.

Claim 58 (New): A substrate dividing method according to claim 57, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 59 (New): A substrate dividing method according to claim 56, wherein the modified region is a molten processed region.

Claim 60 (New): A substrate dividing method according to claim 56, wherein the substrate is an insulating substrate.

Claim 61 (New): A substrate dividing method according to claim 56, wherein the front face of the substrate is formed with a functional device; and
wherein the rear face of the substrate is ground in the step of grinding the substrate.

Claim 62 (New): A substrate dividing method according to claim 56, wherein the step of grinding the substrate includes a step of subjecting the rear face of the substrate to chemical etching.

Claim 63 (New): A substrate dividing method according to claim 56, wherein the modified region includes a crack region.

Claim 64 (New): A substrate dividing method according to claim 63, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 65 (New): A substrate dividing method according to claim 56, wherein the modified region includes a refractive index change region which is a region with a changed refractive index.

Claim 66 (New): A substrate dividing method according to claim 65, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 ns or less.

Claim 67 (New): A substrate dividing method according to claim 56, wherein the substrate is made of a piezoelectric material.

Claim 68 (New): A-substrate dividing method according to claim 67, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 69 (New): A substrate dividing method according to claim 56, wherein the substrate is cut into a plurality of chips along lines along which the substrate is cut and the lines being arranged in a lattice for the substrate.

Claim 70 (New): A substrate dividing method according to claim 56, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate after the step of grinding the substrate.

Claim 71 (New): A substrate dividing method according to claim 56, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate in the step of grinding the substrate.

Claim 72 (New): A substrate dividing method comprising the steps of:
irradiating a substrate with laser light while positioning a light-converging point within the substrate, so as to form a modified region within the substrate without forming a groove due to melting on a laser light incident face of the substrate, and causing the modified region to form a starting point region for cutting the substrate inside the substrate by a predetermined distance from the laser light incident face of the substrate; and

grinding the substrate after the step of forming the starting point region for cutting such that the modified region does not remain in the substrate and at least a portion of a fracture generated in a thickness direction of the substrate from the starting point region for cutting remains in the substrate;

wherein the substrate is cut when the fracture reaches a front face and a rear face of the substrate.

Claim 73 (New): A substrate dividing method according to claim 72, wherein the substrate is a semiconductor substrate.

Claim 74 (New): A substrate dividing method according to claim 73, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 75 (New): A substrate dividing method according to claim 72, wherein the modified region is a molten processed region.

Claim 76 (New): A substrate dividing method according to claim 72, wherein the substrate is an insulating substrate.

Claim 77 (New): A substrate dividing method according to claim 72, wherein the front face of the substrate is formed with a functional device; and
wherein the rear face of the substrate is ground in the step of grinding the substrate.

Claim 78 (New): A substrate dividing method according to claim 72, wherein the step of grinding the substrate includes a step of subjecting the rear face of the substrate to chemical etching.

Claim 79 (New): A substrate dividing method according to claim 72, wherein the modified region includes a crack region.

Claim 80 (New): A substrate dividing method according to claim 79, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 81 (New): A substrate dividing method according to claim 72, wherein the modified region includes a refractive index change region which is a region with a changed refractive index.

Claim 82 (New): A substrate dividing method according to claim 81, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 ns or less.

Claim 83 (New): A substrate dividing method according to claim 72, wherein the substrate is made of a piezoelectric material.

Claim 84 (New): A substrate dividing method according to claim 83, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 85 (New): A substrate dividing method according to claim 72, wherein the substrate is cut into a plurality of chips along lines along which the substrate is cut and the lines being arranged in a lattice for the substrate.

Claim 86 (New): A substrate dividing method according to claim 72, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate after the step of grinding the substrate.

Claim 87 (New): A substrate dividing method according to claim 72, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate in the step of grinding the substrate.

Claim 88 (New): A method of manufacturing a semiconductor device formed using a substrate dividing method, the manufacturing method comprising the steps of:

irradiating a substrate, the substrate comprising semiconductor material and having a surface formed with at least one semiconductor device, with laser light while positioning a light-converging point within the substrate, so as to form a modified region within the substrate without forming a groove due to melting on a laser light incident face of the substrate, the modified region forming a starting point region for cutting the substrate, the modified region being located inside the substrate by a predetermined distance from the laser light incident face of the substrate; and

grinding the substrate after the step of forming the starting point region for cutting such that the modified region remains in the substrate;

wherein the substrate is cut when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and a rear face of the substrate in order to provide at least one manufactured semiconductor device.

Claim 89 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 90 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the modified region is a molten processed region.

Claim 91 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the front face of the substrate is formed with a functional device; and

wherein the rear face of the substrate is ground in the step of grinding the substrate.

Claim 92 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the step of grinding the substrate includes a step of subjecting the rear face of the substrate to chemical etching.

Claim 93 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the modified region includes a crack region.

Claim 94 (New): A method of manufacturing a semiconductor device according to claim 93, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 95 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the modified region includes a refractive index change region which is a region with a changed refractive index.

Claim 96 (New): A method of manufacturing a semiconductor device according to claim 95, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 ns or less.

Claim 97 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the substrate is cut into a plurality of chips along lines and the lines being arranged in a lattice for the substrate.

Claim 98 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate after the step of grinding the substrate.

Claim 99 (New): A method of manufacturing a semiconductor device according to claim 88, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate in the step of grinding the substrate.

Claim 100 (New): A method of manufacturing a semiconductor device formed using a substrate dividing method, the manufacturing method comprising the steps of:

irradiating a substrate, the substrate comprising semiconductor material and having a surface formed with at least one semiconductor device, with laser light while positioning a light-converging point within the substrate, so as to form a modified region within the substrate without forming a groove due to melting on a laser light incident face of the substrate, the modified region forming a starting point region for cutting the substrate, the modified region being located inside the substrate by a predetermined distance from the laser light incident face of the substrate; and

grinding the substrate after the step of forming the starting point region for cutting such that the modified region does not remain in the substrate and at least a portion of a fracture generated in a thickness direction of the substrate from the starting point region for cutting remains in the substrate;

wherein the substrate is cut when the fracture reaches a front face and a rear face of the substrate in order to provide at least one manufactured semiconductor device.

Claim 101 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 102 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the modified region is a molten processed region.

Claim 103 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the front face of the substrate is formed with a functional device; and wherein the rear face of the substrate is ground in the step of grinding the substrate.

Claim 104 (New): A method of manufacturing, a semiconductor device according to claim 100, wherein the step of grinding the substrate includes a step of subjecting the rear face of the substrate to chemical etching.

Claim 105 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the modified region includes a crack region.

Claim 106 (New): A method of manufacturing a semiconductor device according to claim 105, wherein the substrate is irradiated with the laser light under a condition with a peak

power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 μ s or less.

Claim 107 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the modified region includes a refractive index change region which is a region with a changed refractive index.

Claim 108 (New): A method of manufacturing a semiconductor device according to claim 107, wherein the substrate is irradiated with the laser light under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and a pulse width of 1 ns or less.

Claim 109 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the substrate is cut into a plurality of chips along lines and the lines being arranged in a lattice for the substrate.

Claim 110 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate after the step of grinding the substrate.

Claim 111 (New): A method of manufacturing a semiconductor device according to claim 100, wherein the substrate is cut when the fracture reaches the front face and the rear face of the substrate in the step of grinding the substrate.